

# NSF

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LECTURE SERIES

BIOECONOMY COORDINATING COMMITTEE

# 2022

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# BUILDING REGIONAL RESEARCH AND INNOVATION ACTIVITIES TO SUPPORT THE U.S. BIOECONOMY

## SPEAKERS



Mel Ustad, PhD



Ramunas Stepanauskas, PhD

### DATE

January 13<sup>th</sup>

### TIME

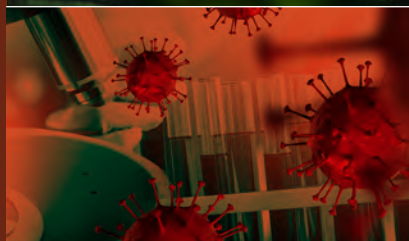
11 am - 12:30 pm

### LOCATION

[Register](#)

### VIEW

[YouTube](#)



National  
Science  
Foundation

## ABSTRACT

The National Science Foundation EPSCoR program has been critical in the development of South Dakota's research infrastructure and bioeconomy. Numerous NSF Track 1 and Track 2 projects have focused on biofuels, biofilms, imaging at the cellular level and developing the skilled workforce enabling the state's bioeconomy to grow and prosper. These efforts have supported the development of Poet, the world's largest biofuels producer and SAB Biotherapeutics, utilizing animal biotechnology to develop and produce human antibodies to treat and prevent diseases such as COVID-19 as well as flu. The NSF EPSCoR program has supported basic biological research at the Sanford Underground Research Facility (SURF) collecting, analyzing and exploring how extremophiles from 4,800 feet underground may be utilized. The NSF EPSCoR support of South Dakota's biotechnology research infrastructure, basic research and workforce development has supported development of a vibrant bioeconomy in South Dakota and the upper Midwest.

## ABOUT DR. MEL USTAD

**MEL  
USTAD, PhD**

**PROJECT DIRECTOR**

**SOUTH DAKOTA  
EPSCoR**



Dr. Mel Ustad is the South Dakota EPSCoR Director coordinating the state's EPSCoR research activities. He has been the Principal Investigator or Co-Principal Investigator on South Dakota's NSF Track 1 projects since 2006. He served as Principal Investigator of the South Dakota Bioscience Commercialization Alliance Economic Development Administration i6 Challenge award and has led numerous multi state collaborative projects. He has served on the South Dakota Bio Tech Association Board of Directors since its establishment in 2006. Ustad served as Director of Commercialization for South Dakota's Governor's Office of Economic Development from 2004-2017. He served as Interim Vice President for Research at the University of South Dakota from 2001-2004.

## ABSTRACT

Although invisible to human eyes, unicellular microorganisms are the oldest, the most abundant, and the most diverse forms of life. Microorganisms that are inaccessible to classical, cultivation-based studies dominate many functions of the biosphere, including the productivity of the oceans, the fertility of soils, the health of plants and animals, and the global cycles of carbon, nitrogen, and other elements. This “microbial uncultured majority” also harbors a vast, underutilized potential for novel natural product discovery and bioenergy production. Single cell genome and phenome analyses are powerful approaches to unlock this enormous potential.

Stepanauskas’ group has pioneered the development of technologies for single cell microbiology and has been leading their use to address a wide array of fundamental and applied science questions. In 2009, they established Bigelow Laboratory’s Single Cell Genomics Center (SCGC), world’s first facility dedicated to genomic studies of individual microbial cells.

Stepanauskas will review related research programs, including a multi-jurisdictional EPSCOR T2 project, focusing on their relevance to bioeconomy, such as biomedical studies, intellectual property development and services to biotech industry. He will also discuss our workforce development efforts, which include partnerships with minority-serving institutions, postdoctoral mentoring, research experiences for undergraduate students, professional courses, and international workshops.

## ABOUT DR. RAMUNAS STEPANAUSKAS

**RAMUNAS  
STEPANAUSKAS, PhD**

**SENIOR RESEARCH  
SCIENTIST**

**DIRECTOR OF  
THE SINGLE CELL  
GENOMICS CENTER**

**BIGELOW LABORATORY  
FOR OCEAN SCIENCES**



Dr. Ramunas Stepanauskas was trained in biology and limnology at Vilnius University (Lithuania) and Uppsala University (Sweden) and obtained his PhD degree in Limnology from Lund University (Sweden). He completed two postdoctoral fellowships in Marine Sciences and Ecology at the University of Georgia. In 2005, Ramunas was hired as a senior research scientist by the Bigelow Laboratory for Ocean Sciences in Maine, where he developed a research program focused on the ecology, evolution and biotechnological applications of environmental microorganisms. Notable achievements include pioneering the technology and infrastructure for microbial single cell genome and phenome analyses, discoveries of previously unrecognized carbon fixation processes in the ocean, and mapping of the coding potential of uncultured microorganisms that dominate Earth’s biosphere. In 2009, Ramunas founded Bigelow Laboratory’s Single Cell Genomics Center (SCGC), world’s first facility dedicated to genomic studies of individual microbial cells. Ramunas is an elected fellow of the American Association for the Advancement of Science and the American Academy of Microbiology. He also a Simons Scholar and a recipient of the Lithuanian Ministry of Science and Education Award for Achievements in Science.



# UPCOMING LECTURES | 2022

## NSF Bioeconomy Coordinating Committee Distinguished Lecture Series

NSF invests in fundamental research to support biotechnology and advance the U.S. bioeconomy across all fields of science and engineering. Presented by NSF's Bioeconomy Coordinating Committee and NSF Directorates, this distinguished lecture series will bring in individual speakers and panels representing the science and technology funded by a Directorate every month. Speakers will present on research and broader impacts in areas associated with biotechnology and the bioeconomy that are of interest broadly across the foundation.

All sessions will be conducted virtually.

**THURSDAY, FEBRUARY 3, 2022**

11:00 a.m. – 1:00 p.m.

### PANEL PRESENTATION:

**WILL DELOACHE, PHD**  
Novome Biotechnologies

**CHRISTINE SANTOS, PHD**  
Manus Bio

**DAN WIDMAIER, PHD**  
Bolt Threads

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For more information, refer to the NSF Bioeconomy Distinguished Lecture Series [website](https://www.nsf.gov) or contact **Jared Dashoff** at [jdashoff@nsf.gov](mailto:jdashoff@nsf.gov).

### WEBSITE

[www.nsf.gov](https://www.nsf.gov)

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